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the photographic intensity is very great with poor definition, and the red-side wing terminating in a bright line is seen very clearly in H_γ , H_δ and H_ϵ . On the second, the impression is weak with perfect definition, and there is little or no sign of the wing even in H_δ ; but alongside of this line there is a feeble but quite distinct bright line in precisely the position of the bright line termination of the wing on the preceding plate: the exposure was just enough to bring out the stronger edge of this extension, leaving the weaker interval untouched; and the same condition of things was found on the other excepted plate of December 1. Again, the measured intervals between the strong centres and the bright line terminations of the wings in H_γ , H_δ and H_ϵ agreed in showing the same spectral interval of 5-tenth metres.

Our photographs therefore go to confirm Campbell's observation of the triple formation of the hydrogen lines, but enormously developed; and the Dominion plates with a prolonged exposure might have provided additional evidence with further details.

1907 June 4.

Note on the Visual Spectrum of Mira Ceti in December 1906.
Rev. A. L. Cortie, S.J.

The spectrum of Mira Ceti was examined visually with a Maclean star-spectroscope attached to the Perry Memorial 15-inch equatorial on the evenings of Dec. 6 and Dec. 9. The visual magnitudes of the star on these two dates have been kindly furnished by Colonel E. E. Markwick, from means of observations by members of the variable star section of the British Astronomical Association, as 2.07 mag. on Dec. 6 and 2.00 on Dec. 9. The maximum intensity in the visual spectrum on these dates was unmistakably in the red and the orange part of the spectrum. The most brilliant part of the spectrum was the bright background or band which began sharply at the edge of Duner's second band at approximate λ 6164 and shaded off towards the violet. The red background to the Duner's bands beginning at approximate λ 6493 and 6164 was very brilliant. The bright space between these two absorption-bands had a central maximum of brightness. With regard to the brilliant space beginning at λ 6164, the edge was so sharp and bright and the intensity faded so perceptibly towards the violet that visually it appeared as a bright band. At least it is safe to affirm that the maximum of brightness of the star was in the region λ 6164-5958. In the telescope on Dec. 6 the star was distinctly golden in hue, and was much redder than Aldebaran when compared with that star on Dec. 9. These visual observations of the spectrum are confirmed in all details by four plates taken with the Hilger compound prism on the nights of Dec. 6, 9, 13, and 14. The plates were stained with pinachrom; and although, as was proved by a trial plate taken of α Cygni, the effect of the dye is to give an exaggerated importance to the orange

part of the spectrum, yet the general appearance of the photographic spectrum on a plate dyed with pinachrom approximates more to the visual spectrum, than photographs taken on isochromatic or ordinary plates. The hydrogen bright lines H_γ and H_δ were well seen on Dec. 6. Assuming that the increased brilliancy of the star at maximum is due to temperature, it is important to notice that the extension of the spectrum into the violet is also accompanied by a much greater radiative power in the red and orange part of the spectrum.

Stonyhurst College Observatory:
1907 June 6.

Note on the Colours of α and $\circ$ (Mira) Ceti.
By W. S. Franks.

In the paper communicated by the Radcliffe observer on the magnitude of $\circ$ (Mira) Ceti [*Monthly Notices*, April 1907, p. 412] there are some remarks on its colour, as compared with α Ceti and other stars. Perhaps some of my recorded observations of these objects may be of interest, as they cover a period from 1876 to 1893. Briefly they are as follows:—

- $\circ$ Ceti orange-red, 26 Nov. 1876, 5-inch o.g.
- „ splendid yellow, 28 Nov. 1877, „ (near *maximum*).
- „ bright yellow, 22 Oct. 1878 „
- „ decidedly red, 14 Dec. 1884, 11¼ in spec. (about 8^m).
- „ orange-yellow, 21 Jan. 1885, „ („ 3½^m).
- „ OrR³ (orange-red), 17 Sept. 1887, 8½ in spec. (est. 7^m ±).
- „ OrR² (pale or. red), 24 Sept. 1887, „ (invis. to n. eye).
- „ Or³ (orange), 4 Oct. 1887, „ (about 6^m).
- „ too small for colour, 1892, 3-inch o.g.
- „ Y³ to OrR³ (10 obs.), 1893, B.A.A. Coloured Star Section.
- α Ceti bright orange, 28 Nov. 1877, 5-inch o.g.
- „ pale orange, 14 Dec. 1884, 11¼ in. spec.
- „ Or² (pale orange), 24 Sept. 1887, 8½ in. spec.
- „ Or³ (orange), 17 Sept. 1887, 8½ in. spec.
- „ Or³ (orange), 4 Oct. 1887, „
- „ Or² (pale orange), (5 obs.) 1892, 3-inch o.g.
- „ OrY² (pale or. yel.), (mean of 33 obs.), 1893, B.A.A. Coloured Star Section.

The colour symbols are those of the nomenclature proposed in vol. xlvii. p. 269 of *Monthly Notices*, which has been found convenient in practice, as by its aid over 36,000 observations have been made, by various persons, of the colours of all the brighter stars in both the Northern and Southern hemispheres, and mean results deduced.

There is no doubt but that *Mira* does exhibit fluctuations in its colour, as evidenced by many observers, but this is probably only an accompaniment of its variation in brightness.

Uxbridge: 1907 May 17.